

AMENDMENTS TO THE CLAIMS

Please cancel claims 9-21 without prejudice or disclaimer.

1. A method of detecting G protein-coupled receptor (GPCR) pathway activity, comprising:

providing at least one cell that expresses a GPCR and a plurality of conjugated proteins, each of the plurality of conjugated proteins formed by conjugating an arrestin protein and a detectable molecule, the plurality of conjugated proteins being substantially evenly distributed in the cytoplasm of the at least one cell;

obtaining a first image of the at least one cell by detecting an amount of energy emitted from the detectable molecules and storing a value relative to the amount of energy;

treating the at least one cell with a test compound;

obtaining a second image of the at least one cell by detecting an amount of energy emitted from the detectable molecules and storing a value relative to the amount of energy; and

comparing the first image and the second image to detect the localization of at least some of the plurality of conjugated proteins at at least one of endocytic vesicles and endosomes.

2. The method of claim 1, wherein the step of obtaining a second image of the at least one cell includes setting a threshold intensity such that the energy emitted from detectable molecules evenly distributed in the cytoplasm are excluded.

3. The method of claim 2, wherein the threshold intensity is set to exclude as much as possible of the energy emitted from the detectable molecules that are evenly distributed in the cytoplasm and as little as possible of the energy emitted from the detectable molecules in endocytic vesicles.

4. The method of claim 2, wherein the threshold intensity is set at the mean intensity of all energy emitted in a control cell plus two standard deviations.

5. The method of claim 2, wherein the threshold intensity is set at the mean intensity of all energy emitted in a control cell plus three standard deviations.

6. The method of claim 1, wherein the test compound is a potential agonist or a potential antagonist.

7. A method of detecting G protein-coupled receptor (GPCR) pathway activity, comprising:

providing at least one cell that expresses a GPCR and a plurality of conjugated proteins, each of the plurality of conjugated proteins formed by conjugating an arrestin protein and a detectable molecule, the plurality of conjugated proteins being substantially evenly distributed in the cytoplasm of the at least one cell;

obtaining a first digital image of the at least one cell by detecting and measuring energy emitted from the detectable molecules, the first digital image being formed from an array of a plurality of pixels each having respective intensity values, a respective intensity value being based on the intensity of energy emitted from the detectable molecules associated with a pixel's location in the array;

treating the at least one cell with a test compound;

obtaining a second digital image of the at least one cell by detecting and measuring energy emitted from the detectable molecules, the second digital image being formed from an array of a plurality of pixels each having respective intensity values, a respective intensity value being based on the intensity of energy emitted from the detectable molecules associated with a pixel's location in the array; and

comparing the first digital image and the second digital image to detect the localization of at least some of the plurality of conjugated proteins at at least one of endocytic vesicles and endosomes, the localization of at least some of the plurality of conjugated proteins being detected by a change in apparent intensity of energy emitted from detectable molecules resulting in an increase in the value of at least some of the plurality of pixels.

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)